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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/976,591	10/12/2001	Tao Chen	020020	2233

23696 7590 04/10/2008

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EXAMINER	
HOM, SHICK C	

ART UNIT	PAPER NUMBER
2616	

NOTIFICATION DATE	DELIVERY MODE
04/10/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	09/976,591	CHEN ET AL.	
	Examiner	Art Unit	
	SHICK C. HOM	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7,8,11,13-18,20-32,34,36-47 and 49-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8,11,13 and 36-40* is/are allowed.

6)☒ Claim(s) *1-5,7,14-18,20-23,26-32,34,41-47,49,51,52 and 54* is/are rejected.

7)☒ Claim(s) *24,25,50 and 53* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 1/19/08 have been fully considered but they are not persuasive.

In response to applicant's arguments in pages 9-10 of the remarks/arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that since the outer coding and inner coding are both performed prior to the multiplexing in Tang, there would be no reason for one of skill in the art to modify Tang to add further complexity and a third level of encoding following the multiplexer 136 is not persuasive because no outer coding and inner coding are recited in applicant’s claims; claims 1, 14 merely recite the steps of encoding with a first code, multiplexing, and encoding the multiplexed content with a second code, and claims 26, 41 recite an inner encoder but no outer encoder. Clearly, Tang in Fig. 3 shows the data in buffer 94 being encoded and multiplexed which reads on the steps of encoding with a first code and

multiplexing. Tang does not teach or suggest the step of encoding the multiplexed content with a second code. Meyer in Fig. 1 shows the multiplexed data 30 being encoded into frames for transmission clearly reads on the step of encoding the multiplexed content with a second code. The motivation for providing the step of encoding the multiplexed content with a second code as taught in Meyer in the system of Tang being that it would provide the desirable feature of common frame format for data transmission across compatible systems in Tang, the fact that applicant has recognized another advantage such as the outer coding and inner coding being performed prior to the multiplexing which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at

> the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-5, 7, 14-18, 20-22, 26-32, 34, 41-47, 49, and 51-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang (6,598,203) in view of Meyer (4,750,167).

Regarding claims 1, 4-5, 7, 14, 17-18, 20, 31-32, 41, 51-52:

Tang discloses the encoding method for reducing decoding complexity, the method comprising:

encoding systematic bits of a bit stream in each of a plurality of buffers with a first code (Figs. 2-3 and col. 2

line 36 to col. 3 line 4 recite coding, i.e. encoder 102, a stream of digital data bits in a parallel manner including a plurality of buffer, i.e. buffer 94, which allow the input data to be written into and read out of clearly anticipate encoding bits of a bit stream in each of a plurality of buffers with a first code);

multiplexing content of the plurality of buffers (Fig. 3 shows multiplex 134, 136, multiplexing the content of the buffers 94).

Regarding claims 2-3, 15-16, 29-30, 44-45:

Tang discloses wherein said encoding systematic bits in each of the plurality of buffers with the first code comprises encoding systematic bits in each of the plurality of buffers with a block code and wherein said encoding systematic bits in each of the plurality of buffers with a block code comprises encoding systematic bits in each of the plurality of buffers with a Reed-Solomon code (col. 2 line 49 to col. 3 line 4 recite the Reed-Solomon encoders mapping a block of 7-bit input symbols into another block of 7-bit symbols).

Regarding claims 14, 21-22, 26, 41, 52:

Tang discloses the method reducing decoding complexity, comprising de-multiplexing frame to a plurality of buffers, wherein the de-multiplexing comprises identifying a block of

bits comprising the frame belonging to at least one of the plurality of buffers, and providing the block of bits to at least one of the plurality of buffers (Fig. 3 shows de-multiplexing 92 frame to a plurality of buffers 94); and processing content of each of the plurality of buffers into a bit stream (Fig. 3 shows the encoder 102, 128, commutator 90 and mux 134, 136 processing content of each of the buffers into a bit stream).

Regarding claims 27-28, 42-43:

Tang discloses wherein each of said plurality of buffers is configured to store systematic bits and parity bits; and wherein each of said plurality of encoders is configured to encode systematic bits to provide parity bits (col. 5 lines 30-39 recite the encoder providing the parity symbols).

Regarding claims 1, 14, 26, 34, 41:

Tang discloses all the subject matter of the claimed invention with the exception of encoding said multiplexed content with a second code to provide a set of frames, wherein the encoding said multiplexed content comprises identifying a block of bits to be encoded and then coding the block of bits with the second code as in claims 1, 14, 26, 34; and decoding received frames by a first decoder as in claim 14.

Meyer from the same or similar fields of endeavor teach that it is known to provide the step of encoding said multiplexed content with a second code to provide a set of frames, wherein the encoding said multiplexed content comprises identifying a block of bits to be encoded and then coding the block of bits with the second code (Fig. 1 and col. 7 lines 4-26 shows and recite the multiplexed data 30 being inputted to the encoder and frame circuit 32 for transmission); and decoding received frames by a first decoder (the abstract recite the receiver which decodes the frames).

Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to provide the step of encoding said multiplexed content with a second code to provide a set of frames, wherein the encoding said multiplexed content comprises identifying a block of bits to be encoded and then coding the block of bits with the second code; decoding received frames by a first decoder as taught by Meyer in the communications method of Tang.

The step of encoding said multiplexed content with a second code to provide a set of frames, wherein the encoding said multiplexed content comprises identifying a block of bits to be encoded and then coding the block of bits with the second code; decoding received frames by a first decoder can be implemented

by connecting the encoder and frame circuit 32 of Meyer to the multiplexer and connecting the frame decoder of Meyer to the receiver of Tang.

The motivation for providing the step of encoding said multiplexed content with a second code to provide a set of frames, wherein the encoding said multiplexed content comprises identifying a block of bits to be encoded and then coding the block of bits with the second code; decoding received frames by a first decoder as taught by Meyer in the communication method of Tang being that it provides higher precision for transmission of signal in a common carrier defined frame and that it would provide the desirable feature of common frame format for data transmission across compatible systems in Tang.

5. Claims 23 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang (6,598,203), Meyer (4,750,167) in view of Naden et al. (6,560,206).

Regarding claims 23 and 54:

For claims 23 and 54, Tang and Meyer disclose the apparatus and method described in paragraph 4 of this office action. Tang and Meyer disclose all the subject matter of the claimed invention with the exception of wherein said processing content

of each receive buffer comprises: providing systematic portion of each buffer to higher layers as in claims 23 and 54.

Naden et al. from the same or similar fields of endeavor teach that it is known to provide systematic portion of each buffer to higher layers (see col. 10 lines 40-46). Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to wherein said processing content of each receive buffer comprises: providing systematic portion of each buffer to higher layers as taught by Naden et al. in the apparatus and method of Tang and Meyer. The step of providing systematic portion of each buffer to higher layers can be implemented by using layer approach of design of Naden et al. in the encoder of Tang and Meyer. The motivation for using the layer approach including providing systematic portion of each buffer to higher layers as taught by Naden et al. in the method and apparatus of Tang and Meyer being that it provides more reliable and efficiency for the system since the system is more modular and can be better interfaced and changed.

Allowable Subject Matter

6. Claims 8, 11, 13, 36-40 are allowed.

7. Claims 24-25, 50 and 53 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHICK C. HOM whose telephone number is (571)272-3173. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pham Chi can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chi H Pham/
Supervisory Patent
Examiner, Art Unit 2616
4/3/08

SH